MICHIGAN HEALTH & HOSPITAL ASSOCIATION

Advocating for hospitals and the patients they serve.

TO: Members of the House Labor Committee

FROM: David Finkbeiner, Vice President, Advocacy

DATE: June 26, 2007

SUBJECT: **HB 4339 – 4341 Nurse Staffing and Overtime**
MHA Position: Oppose

The Michigan Health & Hospital Association opposes House Bills 4339, 4340 and 4341. Legislatively mandated staffing ratios and bans on non-voluntary overtime have proven ineffective in improving patient care, access, and nursing turnover rates in California, where similar legislation was enacted in 2004.

All parties agree that Michigan and the nation face a severe nursing shortage. The Michigan Department of Labor and Economic Growth predicts a shortage of more than 7,000 nurses by 2010 and 18,000 by 2015. The nation faces a shortfall of more than 1 million nurses between now and 2014 according to the Bureau of Labor Statistics. The MHA is committed to working with nursing groups, policy makers and others to act quickly to address the root cause of the nursing shortage – a lack of educational programs, qualified faculty, and training sites to meet demand. The MHA supports Governor Granholm's proposed 'Nursing Corp' plan to focus funding and efforts on recognized barriers to the nursing workforce supply. Hospitals are also partnering with colleges and universities to create innovative programs to accelerate the training process, offer educational scholarships and stipends, and help provide educators and clinical training sites.

Early research has shown that there may be some relationship between the number of patients per nurse and patient outcomes, however no research has identified the "ideal" nurse-patient ratio for every hospital. This legislation assumes that all patients, nurses, support staff and facility types are the same 24 hours a day, 7 days a week. Nurses in most facilities have developed staffing plans that reflect the care demands of the patients that can vary by time of day and day of the week. In addition, many other variables have been identified as important to patient outcomes, including the experience and educational preparation of the nurse, the availability of technology (computerized physician order entry, for example) to support the nurse, the availability of support staff (nurse assistants, unit-based pharmacists, etc), and strong nurse-physician collaboration. These principles are reinforced by MHA's Keystone Center for Patient Quality and Safety, a voluntary hospital quality improvement initiative that has gained national and international attention for its impact on quality of care and clinical collaboration.

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In California, similar legislation has actually done more harm than good to nurses, hospitals and the patients they serve. Although California's law took effect in 2004, nine out of 10 hospitals are still noncompliant. The California Department of Health Services has granted waiver requests to hospitals unable to meet the staffing ratios in order to maintain necessary patient access in the state. At least one California hospital, Santa Teresita, shut down as a direct result of the staffing ratios. 35 percent of California hospitals have beds out of service or units closed, 42 percent have had to divert patients from their emergency departments, and 60 percent have been unable to transfer patients from their emergency departments to another hospital for needed care because the receiving hospital could not meet the ratio requirements based on direct surveys of California hospitals. In order to try to fund the additional nurses required by the mandated ratios, many California hospitals have reduced all of the nursing support staff, such as clerks and nursing assistants. This has caused significant nursing dissatisfaction, resulting in further nursing shortages. The reality in California is that the state continues to rank 49th out of 50 in the number of RNs per capita according the U.S. Bureau of Labor Statistics.

These challenging times require flexibility, critical thinking and sound judgment to create environments that are efficient, safe for patients and satisfying to nurses. The MHA supports alternatives to mandatory staffing ratios such as the use of patient classification systems and acuity-based staffing grids to support the professional judgment of the registered nurse in making staffing decisions. The MHA also supports the use of continued utilization of the guidelines published by certifying, state and national regulatory agencies, as well as staffing recommendations developed by national nursing specialty organizations that define and evaluate evidence of safe staffing patterns, educational preparation and competency levels of direct care staff. Finally, there should be consideration of evaluation and research of other factors extraneous to staffing ratios that impacts the workload of the registered nurse, such as availability of ancillary support staff, organizational resources and structures, nurse-physician relationships, the availability of clinical technology support and electronic medical records and the experience level of staff.

Despite the sobering labor statistics, Michigan's hospitals and nurses work together every day to ensure that patients receive high quality care. When staffing issues arise hospitals employ a variety of efforts to ensure appropriate coverage, including recruiting volunteers to work additional hours, offering 'on call' incentives, utilizing managers and educators to work as direct caregivers, employing additional agency or traveling staff, and asking part-time staff to pick up extra hours. These efforts and the steps outlined above to address the nursing shortage are much more effective than legislatively mandating arbitrary ratios and imposing steep financial penalties and licensure sanctions against hospitals.

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MARK T. GAFFNEY, *President* TINA ABBOTT, *Secretary-Treasurer*

June 26, 2007

TO: **Members of the House Labor Committee**

FROM: **Ken Fletcher, Legislative Director**

RE: **Support for HB 4339 – Safe Patient Care Legislation**

The Michigan State AFL-CIO strongly supports House Bill 4339 -- the Safe Patient Care legislation that is currently before the committee.

In many hospitals across Michigan, hardworking dedicated nurses are forced to care for far too many patients. On top of this, nurses are often forced to work mandatory overtime because hospitals do not have a rational staffing plan in place. These two issues have significantly contributed to the nurses shortage as skilled professionals have left the nursing profession because of burnout and job dissatisfaction.

The state cannot address the nursing shortage without dealing with the retention issue. If just a small percentage of non-practicing nurses who are licensed in Michigan choose to actively work in the hospital setting, we would not have a shortage of licensed nurses in health care today. HB 4339 will play a key roll in helping hospitals retain their current workforce.

It's also the right thing to do from the patient perspective. Studies have shown that safe patient care saves lives. Increasing nurse staffing levels lowers mortality rates and reduces risks of infections and other post-surgical complications.

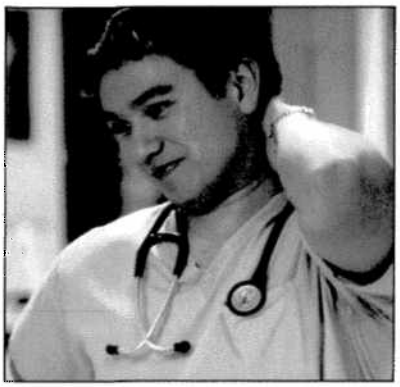
We have laws that regulate the staffing levels and number of hours that can be worked by airline pilots and truck drivers. It only makes sense that similar standards should apply to nurses who take care of hospital patients every day.

In the long run, Safe Patient Care legislation will save hospitals money as medical errors and patient lengths of stay declines and nursing turnover dramatically decreases.

We have all waited long enough for hospitals to act on their own to solve this growing problem. That is why it's time to pass House Bill 4339 to improve patient care in Michigan.

Thank you for taking up this important piece of legislation.

Michigan Nurses Association **The Power of > One** *more than*



Saving lives and money

The need for Safe Patient Care legislation grows urgent

Hospitals are becoming dangerous places to stay. Patients are advised to have someone with them at all times. Family members take the role of patient advocate. Why? Unless registered nurses are covered by a union contract, there are rarely limitations on mandatory overtime or on the number of patients assigned to each nurse.

The result is tragic when you look at the cost of mistakes, injuries and lives lost because nurses couldn't get to a patient frequently or quickly enough. Yet the hospital industry has opposed MNA's push for Safe Patient Care (SPC) legislation since it was first introduced.

Proposed SPC legislation now exists in both the Senate (SB 63) and the House (SB 4339). When passed, these bills will eliminate mandatory overtime and require hospitals to develop staffing plans and implement minimum nurse-to-patient staffing ratios.

It is amazing to me that some hospitals continue their unsafe staffing practices. Study after study has documented that nurse staffing directly impacts patient safety, yet hospitals have been slow to make the changes necessary to recruit and retain RNs to ensure patients are safe and well-cared for.

Cheryl Johnson, RN
MNA President

Research shows that this legislation will help save patient lives and will save money as mortality rates drop, medical errors are reduced, patients stay in the hospital for a shorter period of time, and nursing staff turnover dramatically drops.

Tom Bissonnette, RN
MNA Executive Director

Your help is needed to pass these important bills!

The first way to help is to go to the MNA website, www.minurses.org, click on "Safe Patient Care" and use MNA's ACTION ALERT system to send an e-mail message voicing your support for safe patient care legislation to your legislators. Then, subscribe to *NurseLine*, MNA's free weekly e-newsletter by sending your name to carol.smith@minurses.org. New ACTION ALERTS and legislative updates are provided through *NurseLine*, which can also be read on the MNA website at www.minurses.org.

Another way to help is to provide testimony to state legislators. Hearing real life experiences from nurses sends a powerful message to the Capitol. To submit your testimony, contact meghan.swain@minurses.org.

And finally, consider joining MNA. An application and more information are on the MNA website at www.minurses.org. The time is now, the need is great. Take action today!

One Strong Voice MICHIGAN NURSES ASSOCIATION One Strong Union

All the research we've gathered to date clearly shows that mandatory overtime imposed on exhausted nurses contributes to preventable medical errors and puts patient lives at stake.

Laurence S. Rosen, PhD
Health Care Policy Analyst

The Costs of Mandatory Overtime for Nurses

A Supplement to:

The Business Case for Reducing Patient-to-Nursing Staff Ratios and Eliminating Mandatory Overtime for Nurses

Prepared for the

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Introduction

In May 2004, Michigan State Senator Bruce Patterson (R-Canton) introduced a bill entitled the "Safe Patient Care Bill" to the Michigan Legislature. The purpose of this bill is to amend Michigan's Public Health Code (1978 PA 368) to incorporate standards that will assure that all Michigan acute-care facilities will have sufficient registered professional nurses to provide and ensure safe patient care. This bill establishes minimum patient-to-registered nurse (RN) ratios through establishment of a staffing plan for each acute-care facility and through the use of an acuity system to increase RN staffing capacity should the health care needs of the patients warrant it. In addition, mandatory overtime as a staffing strategy is eliminated except in the case of a serious and unforeseen emergency situation.

For purposes of this legislation, mandatory overtime is defined as involuntary time when the RN is (1) required to remain for all or part of another shift when the RN planned to leave at the end of the agree-upon shift assignment, or (2) required to come to work beyond the agreed-upon shift assignment. (Bissonnette, 2004).

Nurses are health care organizations' single greatest expense (Kosel and Olivo, 2002), and nurses are increasingly working overtime (International Council of Nurses [ICN], n.d.), thus driving health care costs even higher. There are several reasons that are generally offered to explain the use of overtime in heath care organizations. An unexpected emergency situation may require on-duty staff to remain on duty in order to address the situation or, similarly, weather conditions or some other uncontrollable event may prevent the normal change of shift. Professional ethics also prevent nurses from leaving during an ongoing procedure. On the other hand, hospital administrators often refer to their inability to hire sufficient full-time nursing staff, so overtime—often mandatory overtime—is used to fill the gaps. (Black, 2002; ICN, n.d.) Nurses who are subject to mandatory overtime, however, see this as a way to reduce hospital costs that leads to chronic understaffing. (Massachusetts Nurses Association, 2000; American Federation of State, County, and Municipal Employees [AFSCME], n.d.)

Although there has been a small but growing number of research studies and peer-reviewed papers concerning the association of nursing staff levels to patient safety, quality of care, and health care costs (see, for example, Stanton and Rutherford, 2004), there have been only a few reports that have directly addressed the issue of nursing staff overtime and its relationship to patient safety and quality of care. There has been almost no research conducted that examines the relationship of overtime work (mandatory or voluntary) and health care costs.

Relationship of Mandatory Overtime to Patient Safety and Quality of Care

There are several industries in which employees' working hours are strictly regulated, mainly to protect the health and safety of the public as well as the employees who serve them. The most well-known examples come from the transportation industry where the work loads of aircraft flight crews, and particularly pilots, are strictly regulated and where over-the-road truck drivers are similarly required to limit their driving time and keep detailed logs to prove it. With the exception of a few states that have passed legislation or created administrative rules that prohibit health care organizations from requiring nurses to work overtime except in the case of emergencies—states such as California, New Jersey, Maine, Maryland, West Virginia, and Washington (CNN.com, 2004; Mengers, 2004)—the hours that nurses may work in providing direct care to patients is not regulated in the United States.

It is widely recognized that overtime work among nurses and patient safety are related, and this association is routinely described as one in which increased overtime (voluntary or mandatory) is associated with reduced patient safety. The ICN acknowledges that nurses throughout the world are increasingly working overtime, and "the increasing amount of overtime threatens nurses' ability to provide safe and individualized care for patients." (ICN, n.d.) Threats to patient safety that are likely to result from extensive nursing overtime include the following:

- Nurses being less alert to changes in patients' condition
- Nurses having slower reactions
- Medication errors—adverse drug events (ADEs)
- Errors in clinical judgment
- Increase in nosocomial infections[1]
- Increase in decubiti[2] (Ibid.)

In a report to Congress on mandatory overtime in Department of Veterans Affairs (VA) facilities, the VA (for which mandatory overtime for nurses is allowed) is clearly concerned about the impact of mandatory overtime on patient safety as they report that while "no direct relationship between overtime and medical errors has been identified . . . the Veterans Health Administration will continue to take the steps necessary to reduce the amount of mandatory overtime to the lowest level possible." (Department of Veterans Affairs, 2002.)

In a statement to the Senate Committee on Health Education, Labor, and Pensions, the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) reported that almost one-quarter of sentinel events that were analyzed under their guidance were related to nurse staffing issues, including fatigue. (JCAHO, 2001) Perhaps most significant, however, are statements in the Institute of Medicine's recent report, *Keeping Patients Safe: Transforming the Work Environment of Nurses* (Page, 2004), including:

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[1] Hospital-acquired but unrelated to the original condition for which the patient is being treated.
[2] Ulcers or bedsores.

- The long hours worked by some nurses pose some of the most serious threats to patient safety.
- Prolonged periods of wakefulness can produce effects that are similar to the effects produced by alcohol intoxication.
- More than one-quarter of nurses studied reported working in excess of 13 hours at least once per week.
- Some nursing shifts as long as 22.5 hours were recorded in recent research that was cited. (Ibid., page 6.)

Two research studies were referred to by the Institute of Medicine in this regard, and both were citations of unpublished data from researchers at the University of Pennsylvania and the University of Maryland at Baltimore, respectively. Dr. Ann Rogers, author of one of the, as yet, unpublished studies, noted in response to receiving a grant to do this research from the Agency for Healthcare Research and Quality (AHRQ) that "based on my experience, I am familiar with the effects of fatigue on full-time staff nurses, but up until now, the care provided by exhausted staff nurses has been undocumented and remains anecdotal at best."[3] (Nevada Nurses Association, 2002) Since then, however, Dr. Rogers has completed a new study that begins to address this issue directly. As noted in the introduction to her most recent report, "both errors and near errors are more likely to occur when hospital staff nurses work twelve or more hours at a stretch" (Rogers, et al., 2004).

This most recent study had a sample of 393 registered nurses working full time in hospitals across the United States who maintained detailed logs of their hours worked, time of day worked, overtime, days off, patterns of sleep and awake hours, mood, caffeine intake, and, most notably, errors and near errors that occurred while they were working.[4] Logs were maintained for two 2-week periods. Data were collected for a total of 5,317 work shifts. The major findings concerning RN working hours include the following:

- RNs typically work longer than scheduled on a daily basis, and they generally work more than 40 hours per week (see Figure 1, below).
- Thirty-one percent of RNs were scheduled to work shifts in excess of 12 hours; 38.7% actually worked more than 12.5 hours.
- Fourteen percent of study participants reported working 16 or more consecutive hours at least once during the two 2-week periods on which they reported.
- The longest reported shift was 23 hours, 40 minutes.
- Regardless of the scheduled shift time (8 hours, 12 hours, or other), almost two-thirds of the nurses worked overtime at least 10 times during the two 2-week reporting periods.
- One-third of the nurses reported working overtime every day during the reporting period.
- Nurses reported being mandated or coerced to work overtime in almost 10% of the 5,317 shifts that were reported on in this study. (Rogers, et al., pp. 4-5)

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[3] Several anecdotes from nurses required to work overtime at hospitals and nursing homes in Saskatchewan, Canada, may be found in the January 1999 edition of *SunSpots*, the official newsletter of the Saskatchewan Union of Nurses. It is important to note that although all of the Canadian provinces maintain a single-payer health care system where access to care is regulated, mandatory overtime is still a significant problem.

[4] According to the authors, confidential and/or anonymous reporting of errors, as in this study, have been shown to be "a valid approach to ascertaining the nature and prevalence of nursing errors." (Scott, et al., p. 3)

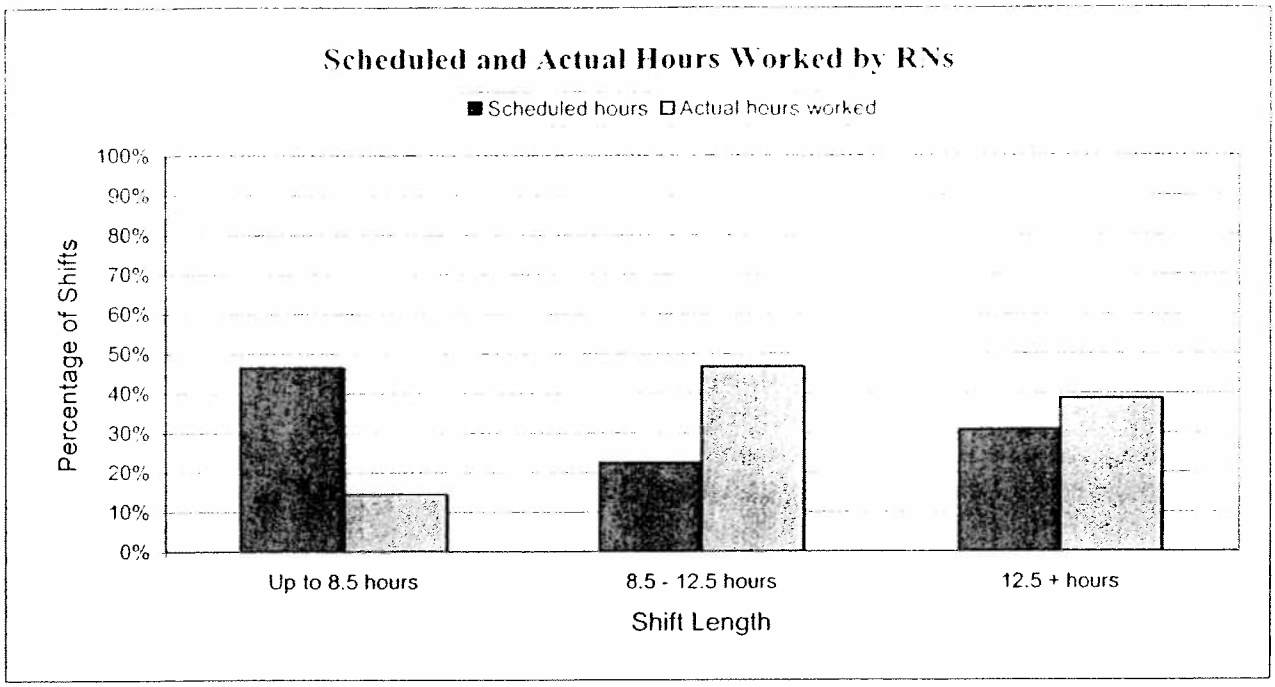

Figure 1

The impact of hours worked, duration of work, and overtime in this study were shown to have a statistically significant impact on patient safety. According to Rogers, et al., "the likelihood of making an error increased with longer work hours and was three times higher when nurses worked shifts lasting of 12.5 hours or more . . ." and "working overtime increased the odds of making at least one error, regardless of how long the shift was originally scheduled." (Ibid., p 5) The study also showed that there is a significantly higher risk of error associated with nurses working overtime after 12-hour shifts. These results also held for the likelihood of "near errors."[5]

The authors of this latest study conclude that as these findings imply a link between poor working conditions (long hours and overtime, mandatory or otherwise) and patient safety, the "routine use of twelve-hour shifts should be curtailed, and overtime—especially that associated with twelve-hour shifts—should be eliminated." (Ibid, 9) This conclusion is consistent with the recommendation made by the Institute of Medicine in its recent report on working conditions for nurses and patient safety:

> *To reduce error-producing fatigue, state regulatory bodies should prohibit nursing staff from providing patient care in any combination of scheduled shifts, mandatory overtime, or voluntary overtime in excess of 12 hours in any given 24-hour period and in excess of 60 hours per 7-day period. (Page, 2004, p. 13)*

[5] A "near error" is when a nurse catches himself or herself before making an error.

Relationship of Mandatory Overtime to Health Care Costs

Overtime work – whether voluntary or mandatory – has a significant effect on the finances of hospitals and other health care organizations. As noted in a Voluntary Hospitals of America (VHA) report on workforce stability in hospitals, the sentinel events (e.g., medical errors) examined by the JCAHO, as noted above, "along with those not reported, involve the potential for sizable malpractice awards, and may compromise the quality of patient care." (Kosel and Olivo, page 11.)

The financial impact of long work hours, expanded workloads, and mandatory overtime for hospital staff nurses is not a direct relationship, but this relationship is, nonetheless, important to recognize and understand. In the short run, most financial analyses will demonstrate that extending work hours, doubling shifts, and mandating that RNs work overtime is less costly than either hiring temporary staff to fill in the staffing gaps or hiring additional full-time nurses in order to alleviate staffing pressures. When a longer time horizon is employed, however, the documentation reported here and in the companion report, *The Business Case for Reducing Patient-to-Nursing Staff Ratios . . .* present a strong case that the consequences of long shifts, increased workload, and overtime (mandatory or voluntary) contribute to fatigue and nurse burnout which, in turn, lead to several costly consequences for health care organizations.

The financial impacts of fatigue and nursing staff burnout tend to be associated with increased patient-care/medical errors, liability concerns, and increased absenteeism and turnover. Each of these is associated with increased costs.

Patient-Care/Medical Errors

Longer hours are associated with a variety of patient care or medical errors, including medication errors, and the longer the hours worked, the greater the likelihood of making an error.[6] All patient care or medical errors are serious, but some are more serious than others, and it is generally recognized that approximately 5.0% of significant errors are potentially life threatening (Leape, 1996).

The costs of some serious patient care errors or complications can be and have been estimated. Based on an analysis of approximately 124,000 surgical patient records during the mid 1990s, Cho, et al., (2004), estimated that hospital-acquired pneumonia added between $22,000 and $28,000 in costs per patient when all the costs of additional care, tests, pharmaceuticals, and additional time in the hospital are added up. Unfortunately, the data available to compile specific estimates of the costs of patient care errors associated with increased work hours and mandatory overtime for nurses are not presently available. The cost of a "typical" medication error is not currently available and cannot easily be determined, as such errors may have widely varying effects depending on the patient's condition, the specific medication, and the type of medication error that occurs. In addition, although expanded nursing hours are statistically associated with increases in patient-care errors such as medication errors, the number and type of such errors have not, as yet, been specified through scientific research. The number of and costs

[6] Medication errors include the wrong patient, the wrong medication, the wrong dosage, the wrong means of administration (e.g., intravenous, oral, etc.), the wrong time, and failure to administer the medication at all.

of "near errors" are similarly indeterminate. Nonetheless, there are direct costs associated with such shortcomings in patient care.

Direct costs may include any remedial action that must be taken to rectify a patient-care or medical error, additional stay in the hospital in some cases, recording of the error, and internal hospital review and analysis of the error. Moreover, some errors may have consequences that reach beyond the individual patient. Rogers, et al., for example, make note of two hospital-wide epidemics of staphylococcus aureus in which extended work hours and nurse fatigue were contributing factors. The costs of identifying, addressing, and rectifying these errors and their results are not insignificant and, except for direct remedial action, they are not usually reimbursable. In addition, there are also indirect costs associated with patient-care and medical errors that may result from nursing staff fatigue associated with long work hours. Patient care and medical errors can lead to heightened risk-management activities, increased internal-review and remediation efforts, public relations issues, and, in extreme cases, threats to accreditation and licensure.

Medical Liability

Any policies or practices that may lead to the increased possibility of patient-care errors inevitably produce increased activity on the medical liability front. As noted above, increased errors resulting from long hours and nursing staff fatigue, at a minimum, induce greater levels of activity for risk managers and various quality review committees. In some cases, these events may lead to insurance claims and litigation, both of which are typically expensive.

Absenteeism and Turnover

The most immediate financial impacts of the stress and fatigue of long working hours, extended shifts, and mandatory overtime are manifested in increased absenteeism and turnover among the nursing staff. A recent study of Canadian nurses, for example, reported that long hours and fatigue are directly associated with job dissatisfaction and increased absenteeism. Approximately 12.0% of nurse absences are related to fatigue associated with the length of their shifts or the potential for overtime at the end of their shifts. In addition, nurses who worked longer shifts exhibited lower levels of job satisfaction than those who worked shorter shifts. (Zboril-Benson, 2002) Figure 2, below, illustrates the mean annual sick days taken by Canadian RNs and other hospital workers in 2001.

If elevated levels of absenteeism is an outcome of long hours and overtime for nurses in the United States, as the study cited above implies, there are only two possible responses. Hospitals either hire temporary nursing staff at premium rates to fill in for those who are absent, or they impose greater workloads and longer hours on those RNs who are in attendance. In the first case there is an immediate cost to the hospital. In Maryland, the average hourly wage for an employed hospital RN was approximately $34 during the last few years. The average hourly cost for an agency nurse was $55, or $21 more. (Maryland Hospital Association, n.d.) The Maryland Hospital Association also noted that hiring agency nurses added $241 million to the cost of hospital care in Maryland in 2002. (Ibid., 2003) In the second case, a less immediate but potentially more serious outcome is the likelihood of generating greater nursing dissatisfaction with their work, increased nurse burnout, and, ultimately, increased turnover among nurses. One recent study of 43,000 nurses in five countries reported that more than 40.0% of nurses working

in United States hospitals were dissatisfied with their jobs, and almost 23.0% planned to leave their current jobs in the near future. (Aiken, 2001)

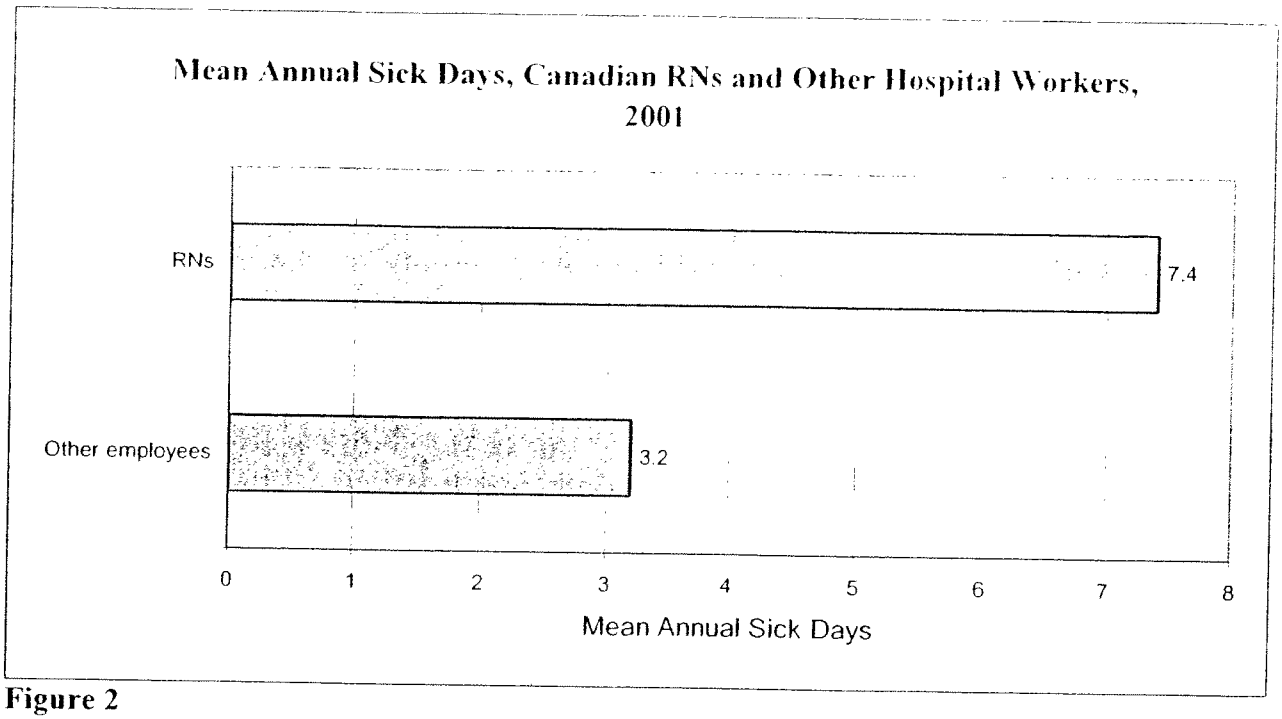

Figure 2

VHA examined the impact of staff satisfaction and "willingness to stay" (i.e., how long an employee planned to stay within his or her organization). They found that as satisfaction declined, employees were less willing to stay, thus increasing turnover rates. (Kosel and Olivo, 2002) According to Gelinas and Bohlen (2002, p. 6), "the demands of 24/7/365 staffing, on-call work, and mandatory overtime seem increasingly unattractive."

As detailed in *The Business Case for Reducing Patient-to-Nursing Staff Ratios and Eliminating Mandatory Overtime for Nurses,* turnover is costly to healthcare organizations both in terms of patient safety and in terms of increasing hospital costs. A study of 235 VHA hospitals in 2001 demonstrated that healthcare organizations with lower turnover rates exhibited shorter patient lengths of stay; hospitals with higher turnover rates exhibited longer patient stays. High turnover hospitals had higher per patient costs. On average, severity-adjusted patient length of stay was more than a day greater at high turnover hospitals than at low turnover hospitals (Kosel and Olivo, 2002), and corresponding patient costs at high turnover hospitals were almost $2,000 more (in year 2000 dollars) per discharge than at low turnover hospitals. (Gelinas and Bohlen, 2002) As reimbursement contracts rarely pay for all costs, increased length of stay typically means higher actual costs and lower margins for the health care organization.

In addition, the typical cost for replacing a staff RN is approximately equivalent to the annual salary of the individual being recruited. Every instance of increased working hours, expanded shifts, or mandatory overtime that contributes to nursing turnover invariably leads to higher—and preventable—hospital operating expenses. At current salary levels, this could be as much as

$50,000 for each medical/surgical nurse replaced and as much as $64,000 for each critical care or other nurse specialist that must be replaced. Replacing twenty nurses who resign due to fatigue and burnout from workload and overtime stresses could cost a healthcare organization $2 million--$1 million in salaries for replacement staff and $1 million to recruit, hire, and orient new staff.

Although the relationship between increased overtime for nurses and patient-care errors, nurse burnout, and nursing staff turnover has been reasonably well demonstrated in the past several years, the quantitative impact of overtime hours on patient-care/medical errors as well as the number of nurses who are replaced annually as a result of excessive working hours have still not been specified. Nonetheless, as nurses represent the largest single labor expense for hospitals, reliance on mandatory overtime to fill the gaps will likely continue to produce short-term savings for health care organizations. But accounting for the fatigue and additional stress this strategy places upon the direct-care nursing staff, the long-term financial impact of increased patient-care errors and higher rates of nursing staff turnover will, in the long run, far exceed any transitory savings that may result from long hours and mandatory overtime.

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The Business Case for Reducing Patient-to-Nursing Staff Ratios and Eliminating Mandatory Overtime for Nurses

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Introduction

In May 2004, Michigan State Senator Bruce Patterson (R-Canton) introduced a bill entitled the "Safe Patient Care Bill" to the Michigan legislature. The purpose of this bill is to amend Michigan's Public Health Code (1978 PA 368) to incorporate standards that will assure that all Michigan acute care facilities will have sufficient registered professional nurses to provide and ensure safe patient care. This bill establishes minimum patient-to-registered nurse (RN) ratios through establishment of a staffing plan for each acute care facility and through the use of an acuity system to increase RN staffing capacity should the acuity of the patients treated warrant it. In addition, mandatory overtime as a staffing strategy is eliminated except in the case of a serious and unforeseen emergency situation.

Lowering the patient-to-RN staffing ratio is not an insignificant or routine task, either from a management point of view or from a medical treatment point of view. Over the past decade there have been a number of studies that have reached one or more of the following conclusions regarding the relationship of patient load to direct-care nursing availability in acute care facilities:

- Fewer patients per nurse is associated with higher job satisfaction, lower burnout, higher rates of retention, and lower rates of turnover among nurses.
- Fewer patients per nurse is associated with higher quality of care, especially as illustrated by lower mortality rates, complications, and adverse events.
- Fewer patients per nurse is associated with shorter length of stay and, ultimately, lower overall costs per discharge.

It is important to note, however, that any effort to reduce the ratio of patients to RNs who are engaged in providing direct care to patients entails a number of financial and other costs to acute care hospitals. The costs to hospitals for having lower patient-to-RN ratios are generally identified in terms of the direct and immediate costs of salaries and benefits for additional nurses, along with the indirect costs associated with recruiting, hiring, and orienting additional nursing staff. Reducing or eliminating mandatory overtime for RNs also fits into this equation, as a larger complement of full-time and regularly scheduled nurses is required to make this feasible. There is some documentation concerning the costs of reducing or eliminating mandatory overtime for nurses, although most of the analysis on this topic has focused mainly on the costs and benefits of reduced patient ratios for full-time staff RNs. The impact of reducing mandatory overtime for RNs on staffing issues and patient care will be addressed in a separate report.

On the other side of the ledger, a number of research activities reported on in the health care literature over the past decade indicate that there are significant benefits associated with lower patient-to-nurse ratios. Actions that reduce the number of patients per nurse in acute care hospitals can, and often do, produce outcomes that are beneficial in a number of ways. Operationally, these benefits are manifested in the quality of care provided to hospital inpatients, reductions in the use of hospital resources, and improvements in the quality of work life for nursing staff. The reported benefits include (1) fewer complications for patients during their course of care in the hospital, (2) fewer adverse events occurring to patients during their course of care, and (3) an improved work environment for RNs (and other personnel) that result in a

lower rate of RN turnover. Each of these benefits has specific financial or cost implications (see Table 1. The benefits of reducing or eliminating mandatory overtime for RNs fall within the same categories. Additionally, reduction or elimination of mandatory overtime also reduces the problems associated with fatigue and burnout that may also, subsequently, be manifested in reduced complications, fewer adverse events, and less nursing staff stress.

Table 1: Cost Benefits of Reduced Patient-to-Nurse Ratios

1. Fewer complications resulting in:
   - Reduced costs of treatment.
   - Reduced lengths of stay.
2. Reduced adverse events resulting in:
   - Reduced costs of treatment.
   - Reduced patient risk and, indirectly, reduced liability costs.
3. Reduced nursing staff turnover leading to:
   - Reduced costs of replacing nursing staff.
   - Reduced costs for temporary or traveling nurses.
   - Reduced overtime costs.

The following sections will quantify, to the extent possible, both the costs and the benefits that have been identified by reputable organizations and through credible research about nursing care and the ratio of patients to nurses in acute care hospitals. In some cases, the data that are cited identify professional nurses only. In such cases, the nursing cadre consists of both Registered Nurses (RNs) and Licensed Practical Nurses (LPNs). In other cases, the research cited refers to RNs only. These distinctions will be noted wherever necessary.

Financial Costs of Reducing Patient-to-Nurse Ratios

To date, only the state of California has implemented legislation that mandates the establishment of patient-to-nurse ratios in acute care hospitals. (www.calnurse.org/finalrat/ratio7103.html.) In California, this legislation identifies professional nursing staff ratios that do not distinguish between RNs and Licensed Vocational Nurses.[1] In an article that appeared in *Health Affairs* in 2002, Coffman, Seago, and Spetz estimated that the cost of implementing California's patient-to-nurse ratios would add an average of between 1.0% and 1.7% to the total operating costs of approximately 270 California acute care and community hospitals. Another study indicated that the additional cost to California hospitals to reduce the patient-to-nurse ratio was likely to be less than half the cost estimated by Coffman, Seago, and Spetz (Berliner, et al., 2002).

Using Coffman's estimates along with data on Michigan hospital finances published by the Citizens Research Council of Michigan (2003), the additional cost of implementing California's recommended patient-to-nurse staff ratios among Michigan hospitals would cost between $161.9 million and $275.2 million in 2002, the latest year for which these data are available. As noted above, California's staffing ratio legislation applies to both RNs and LVNs. Although LPNs in all employment settings in Michigan in 2002 had a mean annual salary that was approximately

[1] LVNs in California are similar to LPNs in Michigan.

69% of the mean annual salary for RNs in all employment settings, we may conservatively estimate that the most realistic cost of implementing California-type staffing ratios in Michigan hospitals would be closer to increasing mean hospital operating costs by 1.7% ($275.2 million) than by 1.0% ($161.9 million).[2] The impact of an increase of 1.7% in operating costs on Michigan hospitals is illustrated in Figure 1, below.

Although these costs are not insignificant and they would add to the financial stress that most Michigan hospitals have reported for the years 1998, 2000, 2001, and 2002 (CRC, 2003), these additional costs still only represent a very small portion of Michigan acute care hospital operating costs. Michigan hospital operating costs in 2002 as originally reported were $14.01 billion. If implemented at these rates, the cost of lowering patient-to-nurse ratios in 2002 would raise statewide hospital operating costs in Michigan to $14.25 billion.

Another study approached this issue from a different perspective and was limited solely to the cost of adding RNs to staff. This Agency for Healthcare Research and Quality (AHRQ)-funded study reported that for every 1% increase in RN FTEs there was an increase of approximately 0.25% in hospital operating costs (McCue, Mark, and Harless, 2003). Assuming that the implementation of lower patient-to-nurse ratios in Michigan hospitals would require a 10.0% increase in average RN full-time equivalents (FTEs) in Michigan hospitals, this would translate to a 2.5% annual increase in hospital operating expenses. A 20.0% increase in RN FTEs would result in approximately a 5 % increase in Michigan hospital operating costs. The impact of both of these assumptions on Michigan hospital operating costs using data provided by the Citizens Research Council of Michigan for 1998 through 2002 are also illustrated in Figure 1, below.

This study, however, also stated that "**. . . increased staffing of RNs does not significantly decrease a hospital's profit, even though it boosts the hospital's operating costs** [emphasis added]. A 1-percent increase in RN full-time equivalents increased operating expenses by about 0.25 percent but resulted in no statistically significant effect on profit margins. In contrast, higher levels of non-nurse staffing caused higher operating expenses as well as lower profits" (Stafford and Rutherford, 2004).

Most other studies of the financial impact of nursing staff levels have been more narrowly focused. Instead of addressing overall hospital operating costs, several other studies have focused on the transitive relationship between nursing staff levels, quality of work life and job satisfaction, nurse burnout and turnover, quality of care provided to patients, and the cost of changes in the quality of care. Figure 2A illustrates the basic premise illustrated by several of these studies. A second diagram, Figure 2B below, expands this premise slightly.

[2] U.S. Department of Labor, Bureau of Labor Statistics. Occupational Employment Statistics. http://www.bls.gov/oes/2003/may/oes_mi.htm#b29-0000, accessed May 12, 2004.

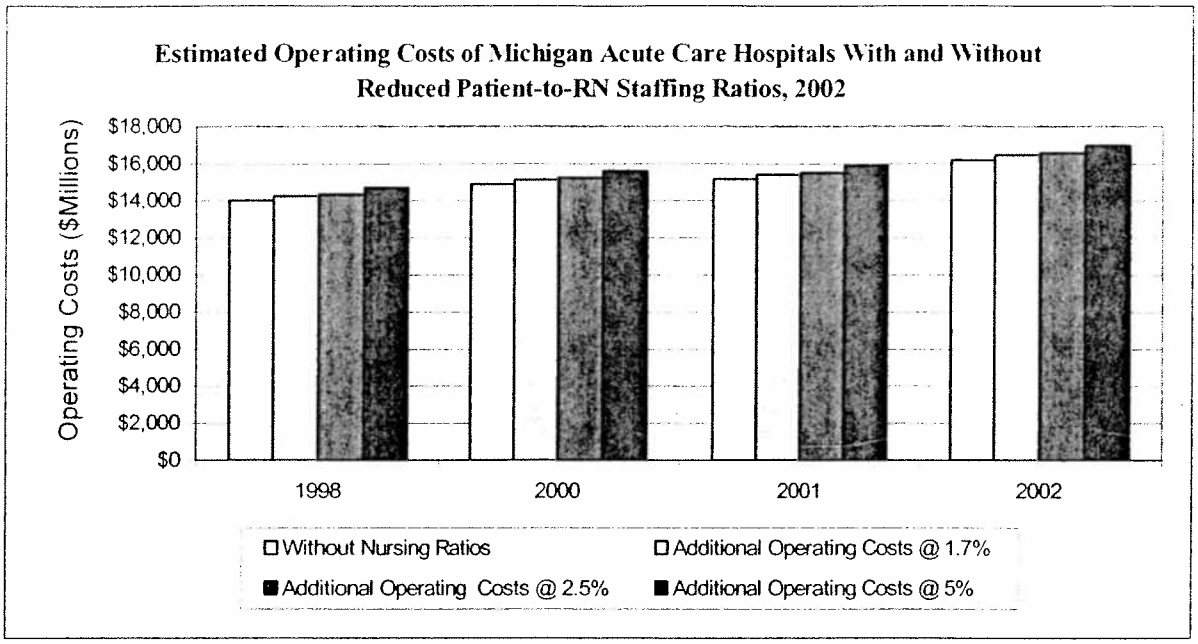

Figure 1

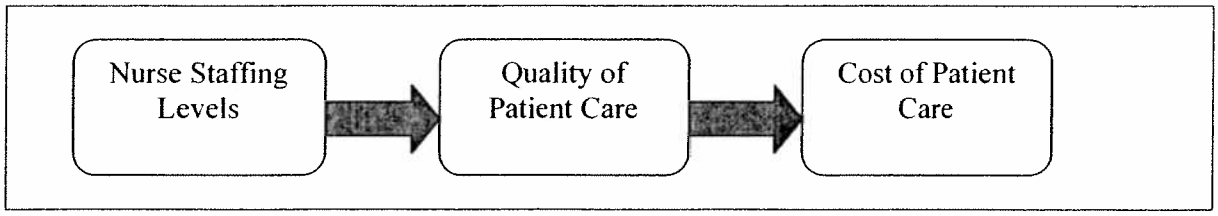

Figure 2A

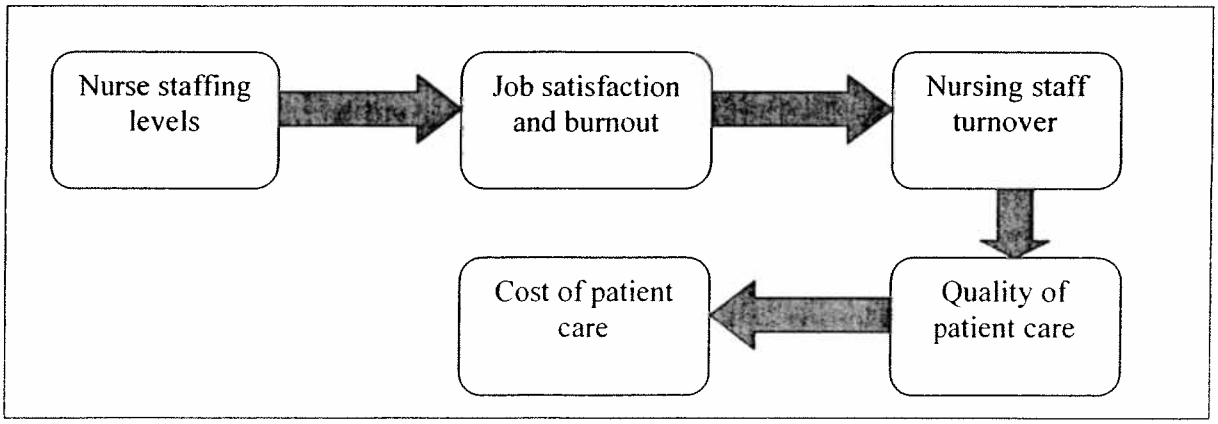

Figure 2B

In addition, although not illustrated in Figures 2A and 2B above, the cost of nursing staff turnover and the costs of hiring temporary, traveling, or agency nurses to assist also generate additional costs.

Patient-Care Benefits of Reducing Patient-to-Nurse Ratios

The relationship between nurse staffing and patient outcomes is well documented. Nurses in the United States consistently report that hospital nurse staffing levels are inadequate to provide safe and effective care. In one recent nationwide study of patient-to-nurse staffing ratios a principal finding was that three in five hospital nurses reported that the staffing level at their respective hospitals were having a negative effect on the quality of care that patients received (Peter D. Hart Research Associates, 2003). Linda Aiken, in a presentation to the Michigan Nurses Association in October 2003, specified the link between nurse staffing and patient outcomes. "Nurses are the surveillance system for early detection and intervention for adverse occurrences" and "Surveillance is influenced by nurse staffing ratios, nursing skill mix, and educational levels of RNs." These observations are not isolated. A recent report by the Joint Commission on the Accreditation of Healthcare Organizations reported that a lack of adequate nursing staff contributed to nearly one-fourth of all the unanticipated problems that lead to death or injury to hospital patients (JCAHO, 2002). Another recent study reported that for every additional patient over four in a nurse's workload, the risk of death for surgical patients increase by 7.0% (Aiken et al., 2002).

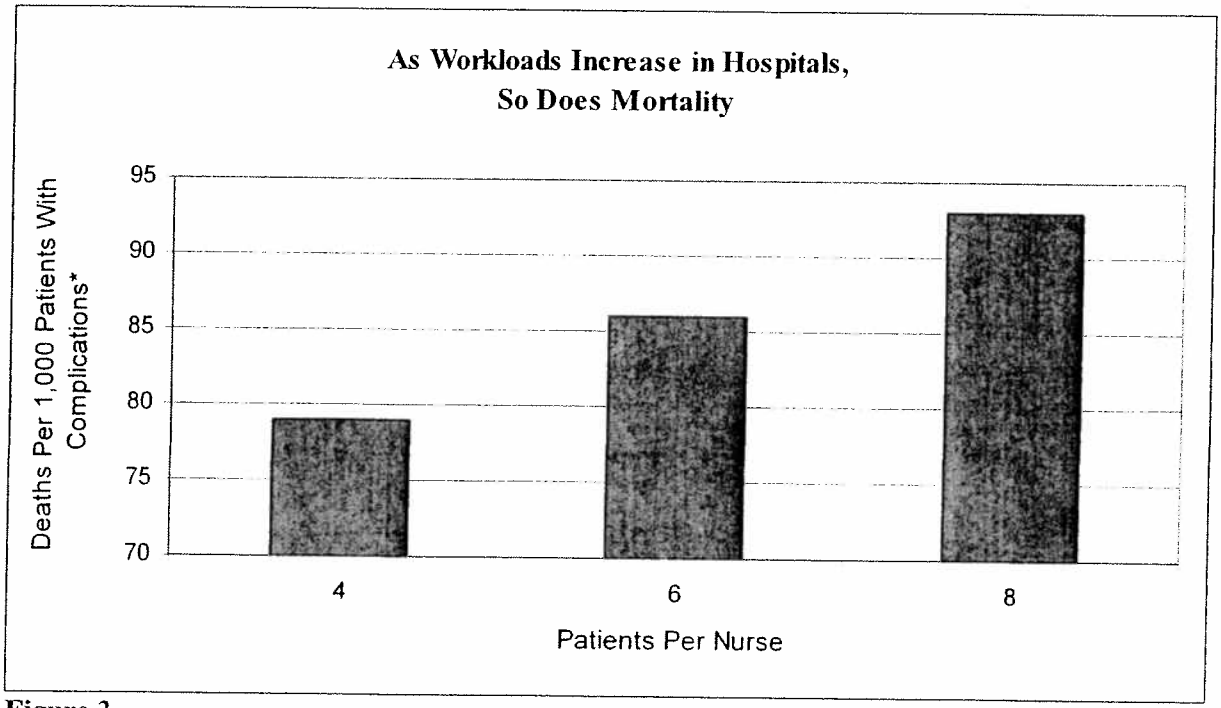

Figure 3

* Adjusted for patient and hospital characteristics.

Source: Aiken, 2003.

The Institute of Medicine 2004 report, *Keeping Patients Safe: Transforming the Work Environment of Nurses* put it this way, "research is now beginning to document what physicians, patients, other health care providers, and nurses themselves have long known: how we are cared for by nurses affects our health, and sometimes can be a matter of life or death" (p. 2). Moreover, citing studies by Kahn et al., 1990, Mitchell and Shortell, 1997, and Rubenstein et al., 1992, the IOM observed that "nursing actions, such as ongoing monitoring of patients' health status, are directly related to better patient outcomes" (pp. 2-3). A study of medication errors at two hospitals in the mid-1990s demonstrated that nurses were responsible for intercepting 86% of all medication errors made by physicians, pharmacists, and others before those errors actually reached the patient (Leape et al., 1995).

The reasons for these findings are fairly obvious. Having too many patients reduces the time nurses can attend to and observe individual patients, and the extra workload often leads to fatigue, and in combination the two can lead to errors. In addition, understaffing means patients often have to wait longer times for medication or medical procedures, and there is often not enough time to educate patients and their families (Peter D. Hart and Associates, 2003, p. 5). The authors of an extensive review of several of these AHRQ-funded studies came to the rather blunt conclusion that "hospitals with low nurse staffing levels tend to have higher rates of poor patient outcomes. . . ." (Stanton and Rutherford, 2004).

A national study of 601 registered nurses who provide direct patient care in a hospital emergency room, operating room, or medical-surgical unit identified each of the following as a serious problem resulting from nurse understaffing.

Table 2: Problems as a Result of Understaffing

Proportion of Hospital Nurses Rating Each as a Serious Problem	
Problem	Rated as Serious
Nurses leaving the hospital due to burnout	62%
Nurses not having enough time to comfort and assist patients and their families	62%
Nurses not having enough time to educate patients and their families	62%
Patients having to wait for long periods of time for their medication and medical procedures	44%
The frequency of medical errors, such as improper medication or dosages	26%

Source: Peter D. Hart Research Associates, Inc., 2003.

Complications

As the relationship between patient-to-nurse staffing levels and quality of patient care has become better documented, research attention in recent years has increasingly focused on

specific patient outcomes that are related to nursing staff levels and the costs of these outcomes, often through retrospective analysis of hospital patient databases in a number of states and elsewhere. The underlying assumption is that expansion of the nursing cadre performing hands-on patient care will result in better quality of care and better patient outcomes. While there are substantial costs associated with expanding the nursing staff to reduce the patient-to-nurse ratio and to minimize or eliminate nursing staff overtime, better patient care and outcomes will pay for themselves through reduced costs associated with complications, adverse events, and reduced patient lengths of stay, not to mention reduced turnover costs and minimization of reliance on high-priced temporary, traveling, or agency nurses.

Specific adverse events or complications that are routinely associated with higher patient-to-nurse ratios include:

- Urinary tract infections
- Pneumonia
- Shock
- Upper gastrointestinal bleeding
- Longer length of stay
- Higher 30-day mortality
- Higher failure-to-rescue rates[3]

Another study (Dimick et al., 2001) also identified reintubation among surgical patients as an additional complication that is associated with high patient-to-nurse ratios.

The financial costs of some of these complications have been estimated by researchers in a variety of settings. Complications among intensive care patients in 33 hospitals following liver surgery, for example, were examined in relationship to patient-to-nurse staffing levels (Dimick, et al., 2001). Those patients treated in ICUs with higher patient-to-nurse ratios exhibited greater pulmonary complications and higher total patient costs than those in units with lower patient-to-nurse ratios. Specifically, higher patient-to-nurse ratios were associated with:

- Higher risk for pulmonary complications ($p<.01$)
- Increased risk for reintubation ($p=.001$)
- Increased individual patient cost by $1,428

A study of 124,204 surgical patients in 232 nongovernmental acute care hospitals in California in the mid-1990s found that an increase in the amount of time spent by RNs with patients was associated with decreased likelihoods of several complications and adverse events and that "the occurrence of each adverse event was associated with a significantly prolonged length of stay and increased medical costs" (Cho et al., p. 1). Complications among surgical patients that were

[3] Death of a patient with a life-threatening complication for which early identification by nurses and medical and nursing interventions can influence the risk of death. (Stanton and Rutherford, p. 2)

likely to be reduced as a result of greater RN care included pneumonia, urinary tract infection, wound infection, and sepsis.[4]

All of these events are associated with prolonged length of stay, increased medical costs, and increased mortality. Limiting discussion exclusively to hospital-acquired pneumonia:

- The greater the number of RN hours per patient day, the lower the likelihood of pneumonia among recovering surgical patients (2.17% to 1.33%).
- The greater the proportion of RNs to all nursing staff the lower the likelihood of pneumonia among recovering surgical patients (2.16% to 1.28%).
- Surgical patients with pneumonia exhibited an average 74.0% increase in total length of stay.
- On average, surgical patients with pneumonia exhibited an increase of between $22,390 and $28,505 in costs *per patient*.

In a review of five AHRQ-funded studies of the relationship between hospital nurse staffing and patient complications, Needleman, et al. noted that, "all five studies found at least some association between lower nurse staffing levels and one or more types of adverse patient outcomes" (Needleman, et al., 2001, p.3). One of the five studies examined approximately 5 million medical patients' records and approximately 1.1 million records of surgical patients treated at 799 hospitals across the nation during 1993.

This study found that greater RN care (e.g., lower patient-to-nurse ratios) among medical patients is associated with lower rates of urinary tract infections (-4% to 12%), upper gastrointestinal bleeding (-5% to -7%), hospital-acquired pneumonia (-6% to -8%), and shock or cardiac arrest (-6% to -10%). Among surgical patients, more RN care was associated with reduced rates of urinary tract infections (-5% to -6%), failure to rescue (-4% to -6%), and hospital-acquired pneumonia (-11%). As noted above, each of these complications has an associated financial cost. (Needleman, et al., 2001).

Finally, a study of licensed nurses (RNs and LPNs) and the incidence of complications and adverse events among medical and surgical patients in Pennsylvania hospitals revealed that having more licensed nurses on staff was associated with lower incidence rates of almost all adverse events (Unruh, 2003). For example, a 10.0% increase in licensed nurses on staff was associated with an average decline of 1.5% in lung collapses, 2.0% decrease in pressure ulcers, and slightly less than a 1.0% decrease in urinary tract infections.

Adverse Patient Events

Much of the same research reviewed above also dealt with a number of adverse events, including adverse drug events, cardiac arrest, fall or injury, failure to rescue, and 30-day mortality. Although no estimates of the costs associated with these events were developed, the following findings are associated with an increase in the number of patients for each nurse (Aiken et al., 2002; Aiken, Sloane, and Lake, 1999):

[4] Contrary to the other findings, the incidence of pressure ulcers was shown to *increase* with greater RN care. The authors hypothesize that a greater proportion of RN care includes more observation of patients, thus resulting in greater likelihood of identifying and treating pressure ulcers.

- One additional patient per nurse is associated with a 7% increase in the likelihood of dying within 30 days of discharge.
- One additional patient per nurse is associated with a 7% increase in the likelihood of failure to rescue.
- An increase of as little as one-quarter nurse FTE per patient day resulted in a 20.0% decrease in the 30-day mortality rate of AIDS patients.

Summary: Complications, Adverse Events, and Costs Associated With High Patient-to-Nurse Ratios

1. High patient-to-nurse ratios are associated with higher rates or probabilities of:

- Pulmonary complications, including hospital-acquired pneumonia
- Reintubation
- Urinary tract infections
- Shock
- Upper gastrointestinal bleeding
- Wound infection
- Sepsis
- Failure-to-rescue rates
- 30-day mortality

2. Higher patient-to-nurse ratios are associated with greater patient average length of stay (ALOS).

- For surgical patients, it results in an average of 74.0% greater ALOS.
  - Current ALOS in Michigan is approximately 4.2 days; a 74.0% increase in ALOS is an ALOS of 7.3, and increase of 3.1 days.

3. Higher probabilities of hospital-acquired pneumonia and other complications produce higher hospital costs. Hospital-acquired pneumonia is the most common of the complications identified in the studies cited.

   - Hospital-acquired pneumonia among surgical patients adds between $22,390 and $28,505 *per patient* to hospital costs.
   - Michigan hospitals treat approximately 1.26 million patients per year: Excluding newborns, there were 1.16 million discharges from Michigan hospitals in 2000, and 29.7% or 345,219 were surgical patients.
   - Approximately 2.59% of hospital surgical patients present hospital-acquired pneumonia, and reducing the patient-to-nurse ratio at Michigan hospitals is estimated to reduce this rate by 11.0%.
   - Estimates of hospital costs savings vary depending on the per-patient savings estimate used. Note that the per-patient savings used in these estimates were determined in the mid-1990s. Current cost estimates are significantly higher.

Table 3: RN Staffing-Related Pneumonia Cost-Savings Estimates
An 11% reduction at $22,390 per patient = $22.03 million saved per year in Michigan hospitals.
An 11% reduction at $28,505 per patient = $28.05 million saved per year in Michigan hospitals

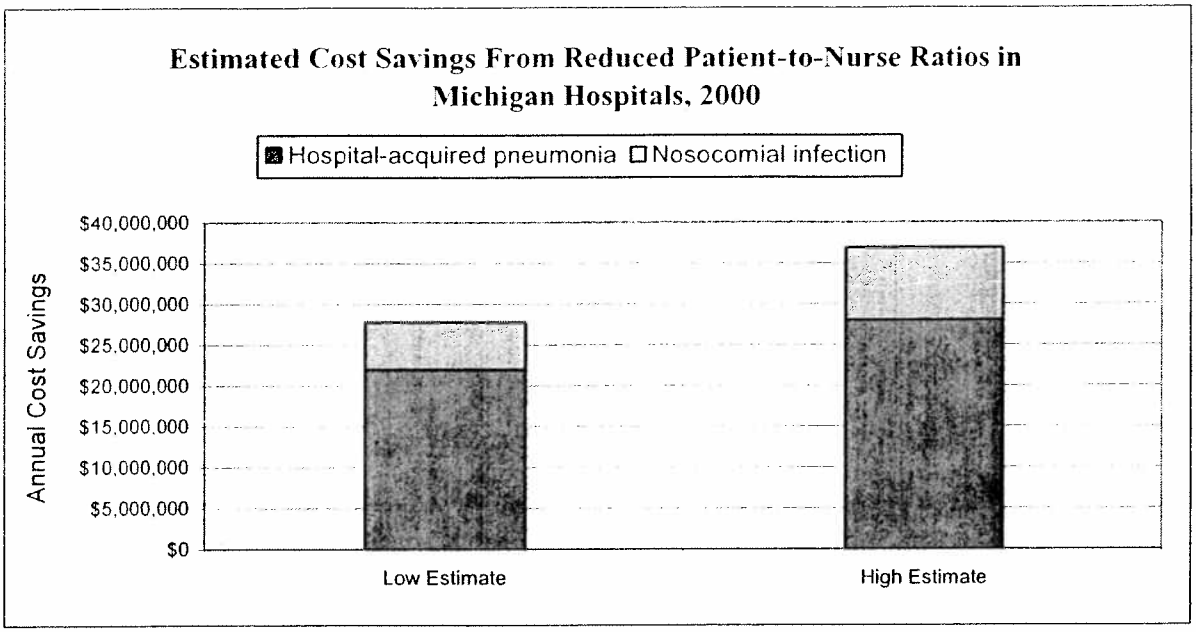

Figure 4

- Nosocomial infection rates (urinary tract infection [UTI], wound infection, sepsis) affect approximately 1.36% of all surgical patients [Cho et al., 2003]).
- Using UTI as a marker for all nosocomial infection categories, Needleman et al. (2001) estimate a 5.0% to 6.0% reduction in infection rates associated with a lower patient-to-RN staffing ratio.
- Cho et al. (2003) also indicate that the occurrence of sepsis produced an even greater increase in patient costs, although a specific dollar amount was not identified. Regression coefficients indicate costs are more than 10% greater than the additional costs of pneumonia. Cost savings from reductions in nosocomial infections are estimated at between $24,629 and $31,356 *per patient*.

Table 4: RN Staffing-Related Nosocomial Infection Cost-Savings Estimates
A 5% reduction @ $24,629 per patient = $5.8 million savings per year in Michigan hospitals.
A 6% reduction @ $31,356 per patient = $8.8 million savings per year in Michigan hospitals.

Cost Benefits of Reducing Nursing Staff Turnover

A number of studies conducted over the past decade have demonstrated a clear relationship between patient-to-nurse ratios, staff turnover, and changes in the cost of hospital care. This is particularly important because the cost of nursing staff turnover is a major hospital expense that can be avoided, or at least reduced, by reducing the rate at which the RN staff—especially those RNs performing direct patient care—need to be replaced each year due to nurse burnout, poor working conditions, or other problems associated with relatively high patient-to-RN staff ratios.

The magnitude of this issue is illustrated by the findings of a nationwide RN study conducted in 2003 in which more than two-thirds of medical-surgical nurses reported they were responsible for six or more patients during an average shift, and these nurses indicated that the number of patients they *should* be caring for is no more than 5.2 (Peter D. Hart Research Associates, Inc., 2003). Patient-to-nurse ratios drawn from this study are illustrated in Figure 5.

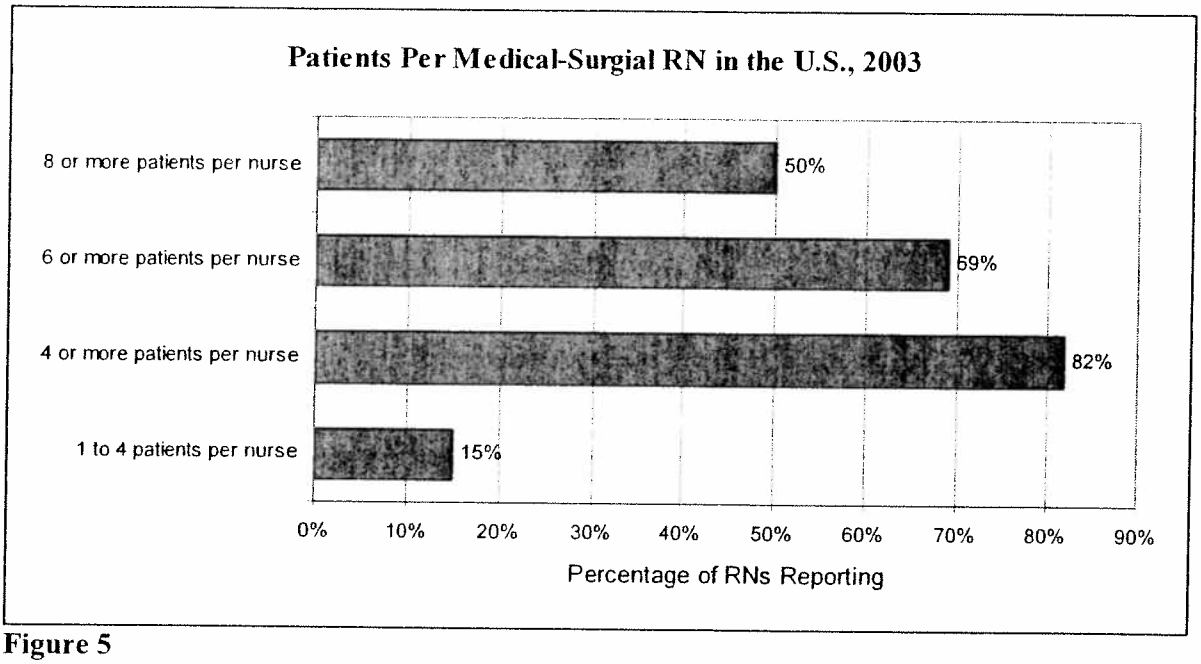

Figure 5

These reported levels of patient-to-RN ratios are significant, as much of the research on this topic in recent years has linked negative patient outcomes to ratios grater than four patients to each nurse. Moreover, staffing levels affect job satisfaction; "with the lowest levels of satisfaction among nurses who feel that they are responsible for more patients than they should be, as well as among nurses with higher patient-to-nurse ratios" (Peter D. Hart Research Associates, Inc., 2003, p. 5). The result is nurse burnout and nurses leaving patient care. Sixty-two percent of the nurses surveyed in 2003 indicated that they have considered leaving the patient care field in order to find work that is less stressful and physically demanding (Ibid., p. 7). In contrast, nurses indicate that improving nurse staffing levels would do the most to improve their jobs and to reduce nurse attrition (Ibid.). These results are consistent with an earlier study in which 89% of

nurses leaving patient care indicated they were doing this to reduce the stress and physical demands of direct patient care (Peter D. Hart Research Associates, Inc., 2000).

During the past two years, Voluntary Hospitals of America (VHA) has undertaken at least two influential studies in direct response to the health care workforce shortages that have challenged their member hospitals in recent years.[5] Among the most important aspects of this research has been VHA's interest in placing a dollar value on the lack of stability in the hospital workforce and, conversely, a dollar value on the reduction in costs to member hospitals that may be achieved if staff turnover—especially nursing turnover—is reduced.

- Based on research conducted by the American Hospital Association, VHA anticipates that the RN vacancy rate for all hospitals has grown from 9.5% in 1999 to 12.7% in 2001, and that this rate will grow to approximately 17% in 2005. According to the VHA, "as turnover rates within health care organizations grow . . . high vacancy rates have a substantial impact on the organization's financial status and the situation is likely to worsen" (VHA, 2002, p. 5).

- Analysis of 235 hospitals by VHA found that health care organizations with low staff turnover rates (annual turnover rates of 4.0% to 12.0%) have shorter patient lengths of stay than hospitals with higher turnover rates; conversely, those identified with medium staff turnover rates (12.0% to 21.6%), or high staff turnover rates (21.6% to 43.8%) have higher patient length of stay. (VHA, 2002). Severity-adjusted length of stay varied from 3.81 days in low turnover hospitals in 2001 to 5.02 days for high turnover hospitals, as noted in Figure 6, below.

- As commonly recognized, increased length of stay leads to increased costs. The same analysis of 235 VHA hospitals revealed that patient costs are directly associated with the amount of turnover. As illustrated in Figure 7, below, patient costs per adjusted discharge varied from $5,268 for hospitals with relatively low staff turnover to $7,190 for hospitals with relatively high staff turnover.

[5] Voluntary Hospitals of America (VHA) is a member-owned health care cooperative that provides its members with products and services that improve their clinical and operational performance. VHA has more than 2,200 member hospitals in 48 states and the District of Columbia. These members represent approximately 25% of all U.S. community or acute-care hospitals.

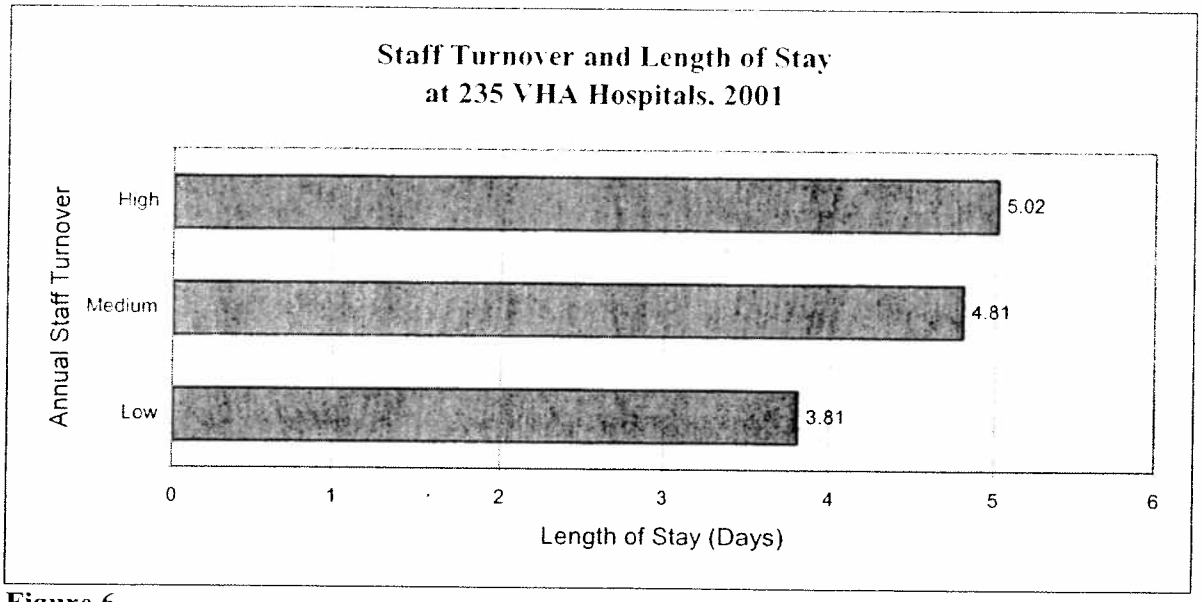

Figure 6

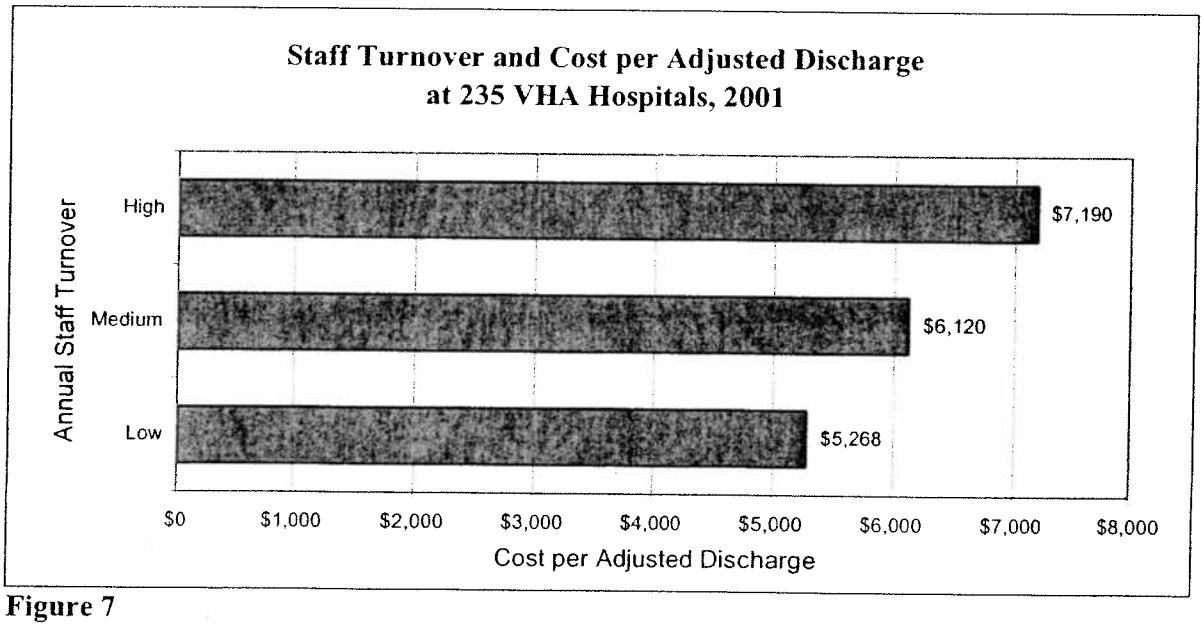

Figure 7

Using these figures to estimate the costs savings that may be generated for Michigan hospitals' approximately 1.16 million discharges (excluding newborns) in 2000, any reduction in length of stay will produce a dramatic and significant impact on statewide hospital costs. As illustrated in Figure 7, even a modest decrease of hospital staff turnover could generate savings of almost $1 billion dollars annually for Michigan's almost 150 acute care and community hospitals. .

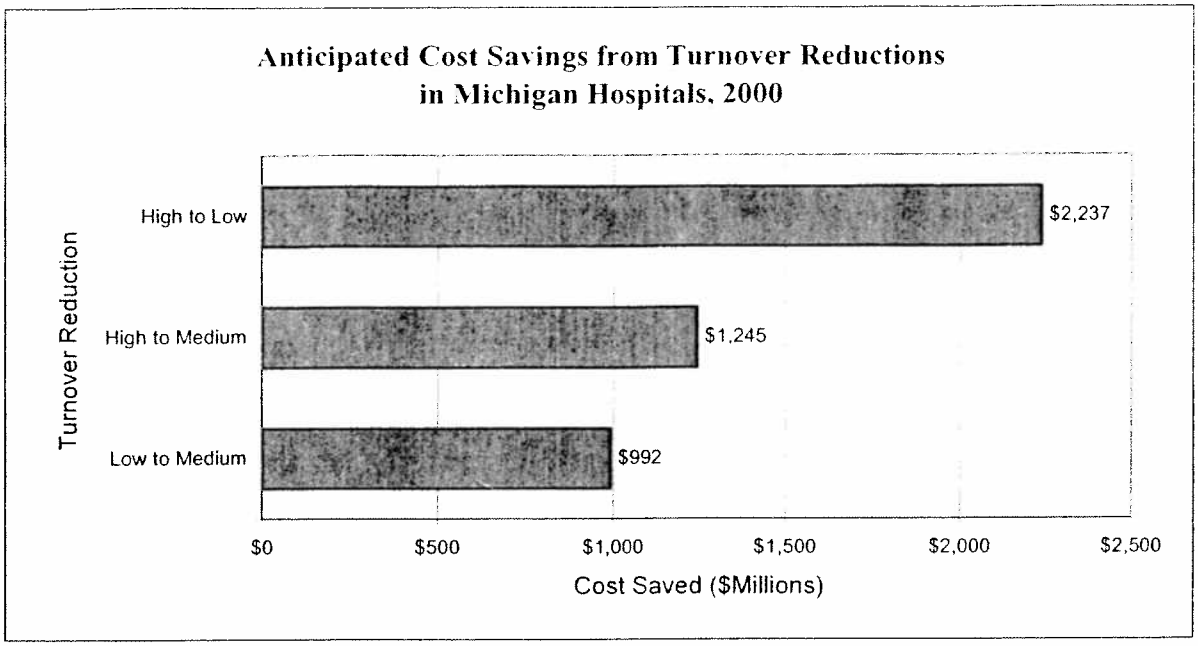

Figure 8

Much of this reduction in annual costs is associated with the fully loaded costs of replacing hospital staff personnel. In the VHA's *The Business Case for Workforce Stability* (VHA, 2002), the entire range of costs associated with staff replacement are identified. These costs are illustrated in Table 5. Based on surveys conducted by the Maryland Association of Hospitals and Healthy Systems, the cost of replacing one hospital nurse was estimated at between $30,000 and $50,000. This is consistent with the VHA's finding that, on average, the cost of replacing a registered nurse is roughly 100% of the nurse's salary.

Table 5: Costs Associated with Replacing Human Capital	
Direct Recruiting Costs	Advertising
	Agency fees
	Referral fees
	Signing bonuses
	Travel expenses
	Testing and profiling costs
Indirect Recruiting Costs	Interviewing costs (time)
	Employee training (interviewing)
	Travel expenses
Productivity and Training	Cost to fill in for lost employees
	Other employees' time
	Training and orientation costs
	Seminars, conferences, and e-learning
	Travel expenses
	Critical project involvement
Termination Costs	Exit interviewing costs (time)
	Severance pay
	Productivity losses

Source: Success Profiles, Inc., 2002, presented in VHA, 2002b.

The 2002 VHA (2002b) report cited here reported the average salary of a medical-surgical nurse at $46,000 and the annual salary of critical care nurse at $64,000. The average RN salary provided by the Michigan Nurses Association (from www.salary.com) is $48,941, and the average RN salary reported by the U.S. Department of Labor for Michigan in 2003 is $51,000. Regardless of the specific RN salary used, even a relatively low rate of RN staff turnover at a small hospital will generate considerable costs.

For example, the Bureau of Labor Statistics reported that there were 75,870 employed RNs in Michigan in 2003. Assuming that approximately two-thirds of these RNs are employed by hospitals (50,000) and 80.0% of these RNs are engaged in providing direct patient care, this translates to roughly 40,000 direct-patient-care RNs. If Michigan's hospitals experience a low 10.0% annual turnover among its patient-care RN cadre each year and the cost for replacing each RN is approximately one year's salary, the cost of RN turnover will be approximately $200 million per year. If, through reduced patient-to-nurse staffing ratios annual turnover can be reduced to 5.0% each year, annual savings will be approximately $100 million spread among Michigan's acute care hospitals.

To put these potential savings in greater perspective, a separate document has been prepared that estimates the costs of reducing RN turnover at a model 200-bed hospital and at a model 50-bed hospital. The net savings for a 200-bed model hospital that reduced RN turnover from 10% annually to 5% annually may grow from approximately $6.5 million during the first year of reduced turnover to as much as $10 million the tenth year. The potential savings for a model 50-bed hospitals are considerably more modest, but not insignificant. Cost savings associated with

reduced RN turnover will likely exceed $1.5 million in staffing costs during the first year of reduced RN turnover and reach almost $2.5 million in the tenth year out. These figures are provided in considerably more detail in a companion document entitled "The Model Case For Reducing Patient To Nurse Staffing Ratios In Michigan Hospitals: Two Scenarios."

Conclusions

The information discussed in this report represents a fairly comprehensive summary of the research that has been conducted concerning the relationship of the staffing level of nurses in acute care hospitals to the quality of care provided to patients and the costs of specific aspects of care. The overwhelming conclusion of all of this research is that fewer patients per nurse and, where specifically examined, fewer patients per RN engaged in direct patient care, is generally associated with higher quality of care. As noted earlier, quality of care is operationally defined in a number of ways, including reduced mortality rates; lower rates of a number of complications and adverse events such as hospital-acquired pneumonia, urinary tract infection, and adverse drug events; and reduced patient stay in the hospital.

The relationship between reduced patients per nurse and reduced health care costs is not as direct, but is no less compelling. It is now widely recognized that reducing the size of the direct-care nursing staff in relation to the overall number of patients has been used as a management tool to reduce overall hospital costs over the past decade. While the financial benefits may be immediately apparent, over time, it has become evident that having fewer patient-care nurses has increased the stress and physical demands placed on nurses involved in direct patient care and this, in turn, has led to increased levels of nursing staff turnover. Nursing staff turnover alone is an expensive activity for hospitals as the total cost of replacing a medical-surgical RN may be as high as $50,000, and the cost of replacing a critical-care nurse may be as high as $65,000. Until nurses are replaced, temporary or agency nurses need to be hired, and these nurses often cost the hospital at least 10% more than they would be paying full-time employees for comparable work. In addition, higher patient-to-nurse ratios appear to contribute to raising the overall cost of health care, even while reducing or eliminating some direct personnel costs. As mentioned earlier, these are the costs associated with treatment for and extended hospital stays associated with various adverse events and complications.

Overall, the research that has been examined in this report indicates that the financial savings associated with higher patient-to-nurse staffing levels are more than offset by the cost of nursing staff burnout and turnover, threats to the quality of patient care, costs associated with longer patient hospital stays, and the additional costs and liability of complications and adverse events that may be prevented by fewer patients per nurse.

In more succinct terms, the annual cost of reducing the patient-to-RN staffing ratio in Michigan (estimated at $275 million) and the one-time cost to recruit these additional RNs (another $275 million), is more than offset by reduced costs associated with lower incidences of hospital-acquired pneumonia ($22.03 million), reduced incidences of various nosocomial infections ($5.8 million), reduced RN turnover ($100 million), and overall reduced costs per discharge ($992 million).

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Michigan Nurses Association

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Michigan Nurses Association
June 26, 2007 Testimony
Michigan House of Representatives
Labor Committee
Patricia Meave, RN

My name is Patricia Meave and I am a registered nurse on staff at Borgess Health Systems in Kalamazoo. I am also a member of the Michigan Nurses Association. I am here to support the passage of House Bill 4339, which would eliminate the use of mandatory overtime as a staffing solution as well as provide nurse-to-patient ratios, which you have **heard/will hear** about today.

Recently the registered nurses at Borgess took a major step with our contract language and negotiated a plan for phasing out the use of mandatory overtime to fill staffing positions. There were several reasons for this decision. First, we know that excessively long hours of work by nurses have a negative impact on safe patient care. There are only so many hours that human beings can function effectively in making important decisions. The risk to our patients and to our own personal health was becoming too great.

Second, we didn't want to put ourselves in jeopardy of being impaired. In 2004, a study published in *Health Affairs* found that nurses who worked a shift that lasted at least 12.5 hours were three times more likely to commit an error. The report went on to state that the errors included giving patients the wrong medicine or the wrong dosage of that medicine.

From my personal experience with this I inadvertently programmed a medication pump to deliver a powerful muscle relaxing medication in an amount that was 3 times the ordered dose. I'm a labor and delivery nurse so the dose I delivered was to an expectant mother. Fortunately the mother and fetus survived my error without

complication, I however will carry that near miss to the end of my nursing career knowing that the outcome could have been a family with a compromised mother, child or both.

In addition the use of mandatory overtime as a staffing solution has a negative impact on the successful recruitment of nurses. It's very difficult to keep nurses on staff who are forced regularly to work beyond their capability. Because of the current nursing shortage, nurses don't stay where they are uncomfortable and their licenses are compromised. Many nurses vote with their feet in regard to staying where mandatory overtime is practiced.

Because the nurses at Borgess are represented by the Michigan Nurses Association, we were able to have a voice in ending the practice of mandatory overtime in our local workplace. But for many nurses, they have no choice in the matter. The issue of mandatory overtime is far greater than one hospital and whether the nurses are represented or not. Mandatory overtime is a threat to nurses, patients, and communities wherever it is used.

I can tell you from personal experience that there is nothing more frightening than taking care of a patient when you know you're no longer sharp. The fear that you will make a terrible mistake and possibly injure or even kill someone that is entrusted to your care is terrifying. There are better ways to staff shifts than to trust the tired reflexes of an already overworked nurse. The practice of mandatory overtime must be stopped.

I thank you for your time and am willing to entertain any questions you might have.

Michigan Nurses Association
June 26, 2007 Testimony
Michigan House of Representatives
Labor Committee
Diane Goddeeris, RN

My name is Diane Goddeeris and I am a registered nurse. I have worked in a hospital at the patient's bedside for 28 years in the area of Obstetrics. I am also the Vice President of the Michigan Nurses Association.

Rep Wojno's legislation on staffing and mandatory overtime is very near and dear to me. I have been supportive of this bill since it was introduced here and in the Senate; and am extremely happy that we now have a hearing before this Labor Committee. I want to share with you why we need this bill to protect the patients.

In Obstetrics, I see nurses assigned to two laboring patients. This is not just two or three patients but two to three moms carrying their babies, which equals 4-6 patients. There is no set rule on how a labor or delivery progresses. The labor process can change dramatically minute to minute with critical decisions having to be made. A nurse needs to be available when critical situations start to happen. How many minutes make a difference in a crisis to save a baby? 7, yes only 7 minutes before irreparable brain damage occurs. For those of you who have had a baby or been with a woman who has had a baby, you know that there is no doctor present during the entire labor process.

In a crisis, one nurse alone cannot care for an emergency, and another nurse will be pulled to help, leaving those patients she has been caring for without a nurse. The nurses are paging a physician while trying to attend to the patient to improve the situation knowing that 7, only 7 minutes is all they have. Each second is critical for a good outcome in those situations. One-on-one care for laboring patients should be the norm. One doesn't want to have a patient come into the hospital, healthy, in labor and find there is no one to care for them because the nurses are already stretched covering two active laboring patients. They need and deserve to have a nurse!

Concerns regarding staffing do not stop in this area. After delivery, the postpartum nurse will then be assigned 4-5 couplets -- 4-5 babies AND 4-5 mothers – making a total of 8-10 patients for one nurse. One often thinks that all is fine after delivery and they are "well moms with well babies". That is not always the case. C-Section rates are rising in the area of obstetrics with over 30% of deliveries in my hospital being Cesarean Sections, a major surgical operation to deliver the baby. Now the nurse has a surgical patient and a baby in their mix of patients. In fact, the nurse could possibly have more than one surgical patient! For surgical patients, the first 24 hours are the most critical time – chances of bleeding are increased and patients often have pain that needs to be dealt with. In the first days of life, babies need to have their temperature regulated, be observed for jaundice (a condition that can cause brain damage if not treated), have their feeding assessed to make sure they are getting the nourishment they need, and have their blood levels monitored for abnormal levels as they adjust to life outside of the womb. While these all seem like things a "normal" baby does with ease, it is not always the case.

In my position in the Michigan Nurses Association, I have had the opportunity to receive e-mails from other nurses with concerns regarding staffing. They know that the MNA and staff nurses like me have been trying to get these bills heard so the situations in hospitals will be helped. Here is a comment from a nurse from the Upper Peninsula:

Diane,
Remember when I told you that I told the staff to "buck up?" Well, I was eating those words big time last night. I had to stay at work and it was so awful I was nearly in tears. I called 17 people and only one came in. Out of the 17 patients, 4 patients were ready to deliver immediately without a nurse available to give one on one care for the mom and the baby. One of the patients had 36 week (gestation) twins. I had to go back with a nurse who had never seen a twin delivery before. They couldn't get the second twin out, it was breech and the resident doctor was pulling on it trying to get it out. I could feel the

sweat dripping down my back. I finally asked for someone to find me another nurse because I was afraid of what was going to happen. Luckily they pulled the baby out and the other nurse left her patient and helped me with the baby till the Neonatal Intensive Care Unit staff came and took both babies to the unit. I came out to find that a patient in Room 11 had had a seizure. I was so worried about that baby. She didn't have a nurse. She had been brought her over from the antenatal unit and put in a room thinking that she was okay to sit for awhile. NOT! Another nurse had to take her, leaving her patient who was 10 centimeters and ready to push without a nurse so I did that delivery. She was so pitiful, she was all alone and giving her baby up for adoption. Her fourth baby. She couldn't afford another child. I spent three hours with her since she was on a high risk IV drug that had to be monitored so she did not get too much and go into a coma or too little and seize. We had another patient that also was put on this drug, making her a one patient to one nurse need and leaving yet another patient without a nurse. I can't really work too many 17 hour shifts anymore. I am too old and I can't bounce back like I use to. I can't imagine how that nurse stayed last week and worked 24 hours.

Or this one from a manager who wanted me to know she was trying to improve the situation as she wrote this to her superior:

While this is fresh in my mind being that I have been called in to work at 3:00 am after working all day – I would like to tell you that we cannot continuously staff at the minimum numbers because they are not adequate. Tonight, at the end of my shift, we had our minimum numbers of nurses on the unit. More patients came in and premature twins needed to be delivered immediately by Cesarean section. They called me back in at 3:00 am after already working a 12 hour shift. Even with me here, I am not sure the staffing is really safe!

Or the Saturday night when I received a call at 11:00 pm from the postpartum unit charge nurse, an experienced nurse who has worked 20 years and is considered one of the best:

Diane, I am calling you because I don't know who else to call. I am too busy to try and find staff and I am going to have to leave because I can no longer give safe patient care after 16 hours. I have had a patient start hemorrhaging (a severe blood loss that can cause a patient to die if not addressed immediately) and another has gone psychotic (the nurse had concerns that she would harm herself or her baby) and there are not enough nurses. We all have 5 couplets – 10 patients and the nursing supervisor has not been able to do a thing. I have tried to do my best and I don't know what else to do. My managers won't answer their phone and I am at a loss. I just can't be here any longer and I am afraid for the patients that are here because there just aren't enough nurses.

The reason she called me because I was her grievance representative and was the only one that answered the phone.

Why do we need these staffing levels? Nurses want to give good care but above all, they want to give safe care. These are examples of nurses that tried but were in situations that couldn't deliver that type of care. Does this happen everyday? Sometimes in hospitals that have minimum staffing levels and no mandatory overtime this does occur – and as you heard, one was from my hospital that does have the those levels. But think about those hospitals that don't have any minimum staffing levels.

Just this past week, I was in and out of the nursery and noticed a baby that appeared to be getting worse as the day went on. The nurse was working one on one with this baby and passed the rest of her assignment to other nurses because this baby was so critical. Staffing that day was above the minimum. She worked hard with the physicians to save that beautiful baby that appeared so normal but had a heart defect. The baby was transferred and later died. I ask you, if this was YOUR child or grandchild – wouldn't you want to know that there were nurses scheduled to be on that unit so that

your family member would get the best care possible versus watching a nurse do the best they could given the lack of staff and the number of patients that needed them?

I never want to look at one of you or your family member wishing I could have done more and wondering if that could have made a difference with the baby in your family.

People wonder why nurses are leaving the profession. People wonder why there is a nursing shortage. Would you want to work at a place where you left at the end of the day wondering if you could have done more?

Rep. Wojno is a registered nurse and she knows that this is important legislation. I urge you to support these bills. This is a time when your action will save lives, and you can go home knowing that YOU made a difference to provide safe patient care.